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Kagome-like Lattice Distortion in the Pyrochlore Material $Hg_2Ru_2O_7$[1] JOOST VAN DUIJN, ROCÍO RUIZ-BUSTOS, Universidad de Castilla-La Mancha, AZIZ DAOUD-ALADINE, Rutherford Appleton Laboratory — $Hg_2Ru_2O_7$ is one of the few pyrochlore materials known containing Ru^{5+}. It undergoes a first order metal to Mott insulator transition (MIT) at T= 107 K, below which the susceptibility is significantly reduced and appears to be nearly T independent. While initially it has been suggested that below 107 K the Ru S=3/2 moments are quenched into an antiferromagnetic spin singlet ground-state, similar as to what is observed in $Tl_2Ru_2O_7$, recent muon and polarized neutron diffraction experiments reveal the onset of long-range magnetic ordering below the MIT. In order to shed light on the magnetic interactions that give rise to the observed long-range ordering we have performed high resolution powder neutron diffraction experiments to determine the low temperature structure of $Hg_2Ru_2O_7$. Below the MIT the symmetry is lowered from cubic to monoclinic and the Ru-Ru bonds, which are equal in the pyrochlore phase, become split into short, medium and long bonds. As a result the exchange interactions between the Ru atoms become more two dimensional. The short and medium bonds form layers, which are separated by the long bonds, that run parallel to the monoclinic *ab* plane. The low temperature structure can best be described as a stacking of Kagome-like layers.

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